

1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

The Preliminary Routing/Corridor Study and Design of the Upper Southeast Salt Creek Trunk Sewer was initiated to evaluate and select an alignment for the extension of the Salt Creek sewer system to serve future growth in south Lincoln. From the 2003 update of the Lincoln Wastewater Facilities Plan and the Lincoln/Lancaster County Comprehensive Plan, the area to be served by this trunk sewer extension is approximately bounded by Yankee Hill road on the north, and Wittstruck Road on the south, as well as Salt Creek on the west and 70th Street on the east. This area consists of the Urban Planning Zones/drainage basins known as S-2, S-3, and S-5. The existing Salt Creek trunk sewer terminates about ¼ mile south of Yankee Hill Road, along the Burlington Northern Santa Fe (BNSF) railroad tracks just east of South 14th Street. The anticipated route for this project will begin at this location and proceed south/southeast along the railroad corridor to a point approximately ½ mile south of Rokeby Road, where the main drainage channel for the S-2 and S-3 Urban Planning Zones flows into Salt Creek. This will provide an outfall for sewer service in the S-2 and S-3 basins, as well as further extensions upstream to serve the S-5 basin.

The Salt Valley trunk sewer system conveys wastewater flows from south, southeast, and southwest Lincoln to the Theresa Street WWTP near North 27th St. and Cornhusker Highway. The main trunk sewer generally parallels Salt Creek through the City of Lincoln. In addition to the upper Salt Creek basins, this trunk sewer system also picks up flow from several other drainage basins throughout the city, including: Beal Slough, Haines Branch, Middle Creek, and West O basins. The Salt Valley trunk sewer system is in the process of being upgraded with a parallel trunk sewer to increase system capacity. The final phase of this project (Phase V) will replace or parallel the existing 24-inch trunk sewer between Pioneers Boulevard and Old Cheney Road. This will provide the needed downstream capacity for the existing 48-inch trunk sewer that is the starting point of the Upper Southeast Salt Creek trunk sewer. Phase V is scheduled for construction in the proposed 2004-2010 CIP during the 2005-2006 and 2006-2007 fiscal years.

A major component of this study was the solicitation of active input from the general public and various stakeholder groups. The environmentally sensitive nature and unique ecological considerations of Wilderness Park offer a rare opportunity and challenge to develop a project that addresses and balances the City's need for additional infrastructure with the valuable assets of the park. During the development and evaluation of alternative routes for the proposed trunk sewer, the project team held public meetings to "spread the word" about the nature of this project. These public information meetings were conducted provide a structured and open process for public participation.

1.2 SITE DESCRIPTION

The project location will generally follow along the BNSF corridor, which is bordered on the east by the Wilderness Ridge golf course and residential development north of Rokeby Road, and agricultural land south of Rokeby Road. The BNSF corridor is bordered on the west by Wilderness Park, with the area north of Rokeby Road consisting of “Old Fields” of reclaimed agricultural land, and the area south of Rokeby Road consisting of mature woodlands.

The proposed alignment through Wilderness Park will begin with a bore under the BNSF railroad tracks at the termination point of the existing trunk sewer. The alignment will then turn south/southeast along the BNSF right-of-way, offset from the right-of-way line approximately 15 feet. Upon reaching the north border of Wilderness Park, the alignment will gradually deflect to 100 feet and then 200 feet west of the BNSF right-of-way, in order to avoid disturbing a buffer strip of trees along the right-of-way line. The alignment will then gradually shift back towards the BNSF right-of-way as the sewer approaches the location of Rokeby Road. The alignment will then bore under the BNSF railroad tracks to the east, and then proceed along the east side of the BNSF right-of-way, offset at approximately 20 feet. The alignment will cross under the existing drainage channel south of Rokeby Road, and terminate at a point on the south side of the drainage channel. The total length of the proposed alignment is approximately 7,330 feet depending on the location and direction of the south crossing of the BNSF tracks.

1.3 PREVIOUS INVESTIGATIONS

In 1999, Olsson Associates evaluated several conceptual alternative routes for the trunk sewer. EA reviewed these routes and updated the cost estimates to allow the City to determine if the funding in the Capital Improvements Plan is appropriate. Figure 2 illustrates the different alignments.

EA made some modifications and changed the costs to reflect these changes. Table 1.1 below summarizes the different alignments and associated costs. The depth of the force main was decreased by 10-feet on the upstream end of the Brown Alignment to decrease depth of cut through Dakota Sandstone. The siphon under the Union Pacific Railroad on the Green Alignment was taken out. This railroad has been taken out of service and cover could now be added over the pipe at that location instead of using a siphon.

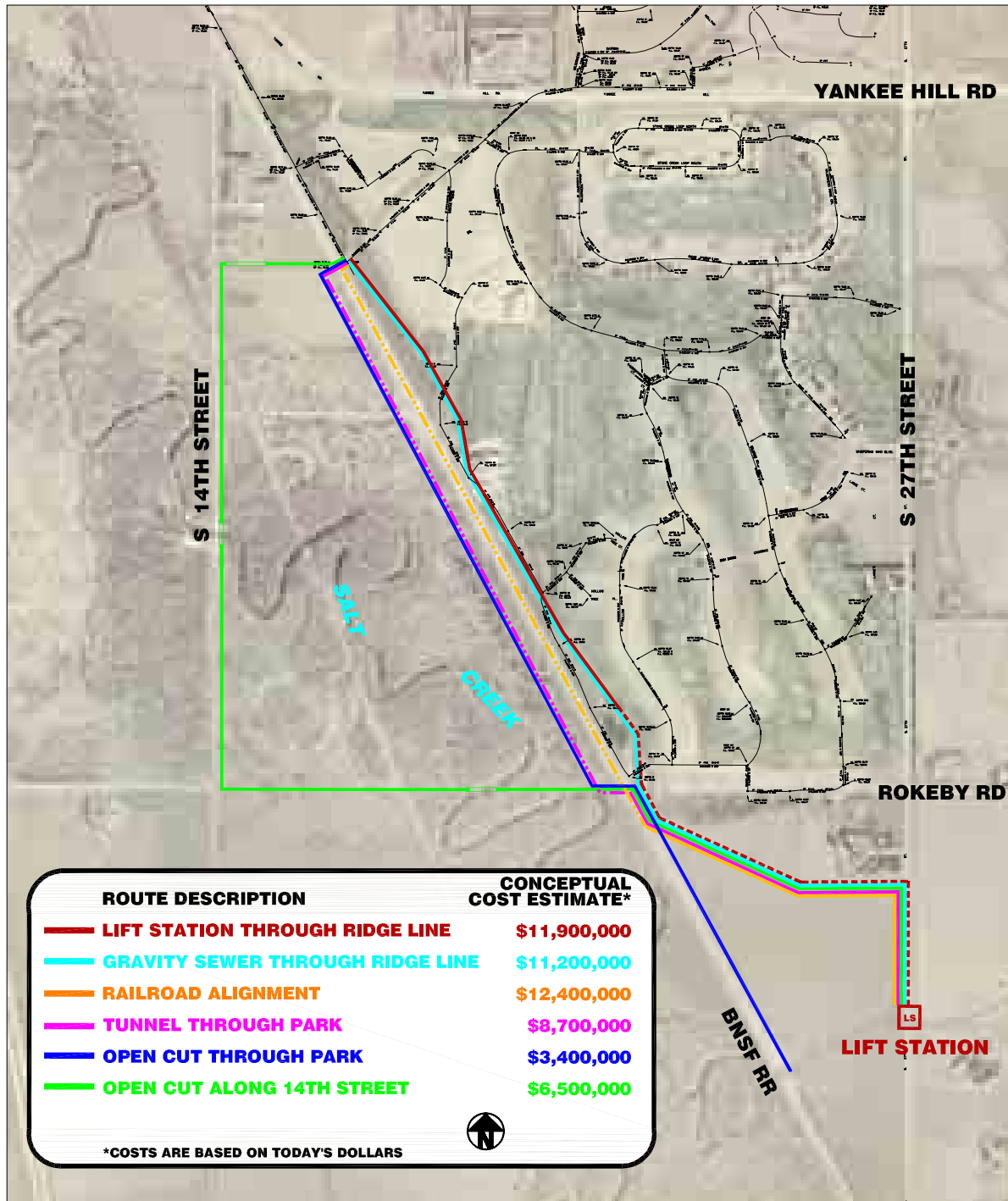
At the kick-off meeting for this project on 29 January 2004, it was decided that the Dark Blue Alignment was the best choice. At this time, it was also decided to move the upstream termination point from 27th Street and Rokeby Road to just south of the drainage ditch south of Rokeby Road, parallel to the Burlington Northern-Santa Fe Railroad. The following table reflects the above modifications.

Table 1.1 – Update of Olsson Associates’ 1999 Conceptual Cost Estimates

Conceptual Alignment	Description	OA's 1999 Cost Estimate	OA's Cost Inflated to 2004 Prices	EA's 2004 Cost Estimate
Brown	Golf Course/Lift Station 30-inch Force Main - Open Cut 42-inch Gravity Sewer - Open Cut	\$12,600,000	\$14,300,000	\$11,900,000
Light Blue	Golf Course/Gravity Sewer 48-inch Gravity Sewer - Open Cut	\$11,950,000	\$13,500,000	\$11,200,000
Orange	Railroad Alignment 48-inch Gravity Sewer - Open Cut 48-inch Gravity Sewer - Tunnel in RR ROW	\$10,850,000	\$12,300,000	\$12,400,000
Purple	Tunnel Through Park 48-inch Gravity Sewer - Open Cut 48-inch Gravity Sewer - Tunnel in Park	\$7,600,000	\$8,600,000	\$8,700,000
Dark Blue	Open Cut Through Park 48-inch Gravity Sewer - Open Cut	\$2,300,000	\$2,600,000	\$3,400,000
Green	Open Cut along 14th Street 66-inch Gravity Sewer - Open Cut	\$7,300,000	\$8,300,000	\$6,500,000

As can be seen from the above table, the Dark Blue Alignment, open cut through Wilderness Park, is the most economical alignment. This route does not cut through Dakota Sandstone (except possibly at the Rokeby Road BNSF crossing), it has less depth of cut, and it does not incur the cost of closing down and restoring the golf course. Compared to the other Park alignments, tunneling in the railroad right-of-way or through the Park is more expensive than open cut construction in the Park, and the alignment along 14th Street requires much greater length and larger diameter pipe.

FIGURE 2 - CONCEPTUAL ROUTES UPPER SOUTHEAST SALT CREEK TRUNK SEWER PRELIMINARY ROUTING STUDY -LINCOLN WASTEWATER SYSTEM-



EA ENGINEERING,
SCIENCE, AND
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UPPER SE SALT CREEK TRUNK SEWER
PRELIMINARY ROUTING STUDY
LINCOLN, NEBRASKA

CONCEPTUAL ROUTES

PROJECT MGR. DS	DESIGNED BY MAB	DRAWN BY EG	CHECKED BY LNG	DATE 8-24-04	SCALE NONE	PROJECT NO. 13540.06	FILE NAME -	DRAWING NO. -	FIGURE 2
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